
ADDRESS

DELIVERED BEFORE THE

N. Y. STATE AGRICULTURAL SOCIETY,

At Buffalo, Friday, October 9, 1857,

BY EDWARD EVERETT.

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ALBANY:

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ADDRESS.

Mr. President, Gov. King, President Fillmore,

Ladies and Gentlemen, Friends and Fellow Citizens :

The surpassingly beautiful spot where we are assembled this day is one of no ordinary interest. We are met in full view of the outlet of one of the most considerable of those inland seas which form so marked a feature in the geography of our continent. We can almost hear the roar of its waters as they plunge, at yonder world-renowned cataract, to the lower level of the sister lake. The prosperous city, under whose immediate auspices we are assembled, has, within the experience of living men, grown up from a small village on the skirts of an Indian reservation, to be the busy mart of a vast inland trade. Behind us, uniting in what may truly be called the bonds of holy matrimony, the waters of the mighty lakes with the waters of the mighty ocean, enduring monument of one of the most honored sons of New York, stretches far to the east that noble

canal, which alone, perhaps, among the works of its class, has sustained itself in the competition with the railroad and the locomotive. In front of us, spread out the fertile domains of a friendly neighboring power, the home of a kindred race, separated from us but by a narrow stream; a region to which we have closely grappled with hooks of steel, or at least with hooks of railroad iron, and the still stronger bonds of a mutually beneficial commercial reciprocity. We have come together on this interesting spot, at the invitation of the New York State Agricultural Society, to hold the farmer's autumnal holiday. From the remotest quarters of the Empire State and her sister republics, the railroads which have thrown their vast network over the country, have afforded a ready conveyance to multitudes. Other multitudes have descended your magnificent lake, in those unparalleled steamers, which, with scarce an interval of time, have taken the place of the bark canoe that skimmed its surface at the beginning of the century. Others from the adjacent province have crossed that noble suspension bridge, a wonder of engineering skill. In behalf of the respectable association in whose name I have the honor to speak, on this spot from which the simple children

of the forest have yet not wholly disappeared, from whatever quarter, by whatever conveyance you have assembled, I bid you welcome. Friends, fellow-citizens, welcome ! The woods have put on their gorgeous robes of many colors to receive you ; the vaporous atmosphere has for this day hung up its misty veil, to shield you from the too fervid sun ; the sparkling waters of Niagara River bid you "HAIL AND FAREWELL," as they hurry downward to their great agony ; and Autumn spreads before you the rustic hospitality of her harvest home.

There is a temptation, when men assemble on occasions of this kind, to exaggerate the importance of the pursuit in which they are engaged, in comparison with the other callings of life. When farmers, or merchants, or manufacturers, or teachers, or professional men, come together to celebrate an anniversary, or an important event, or to do honor to some distinguished individual, it is almost a matter of course that their particular occupation or profession should be represented by those on whom the duty of speaking for their associates devolves as the most important profession or calling. No great harm is done by these rhetorical exaggerations, which in the long run

must correct each other; and which, if they have the effect of making men more content with their own pursuits, are not very pernicious, even if they remain uncorrected.

Although these claims which men set up, each for the paramount importance of his own occupation, cannot of course be all well founded, it may be maintained that each of the great pursuits of life is indispensable to the prosperity of all the rest. Without agriculture and manufactures, the merchant would have nothing to transport or exchange. Without commerce, the farmer and the manufacturer would be confined to a barter trade, in a limited home circle of demand and supply. In this respect, all the great pursuits of life in a civilized community may be deemed of equal importance, because they have each and all for their object to supply some one of the great wants of our nature; because each is necessary, to some extent at least, to the prosperity of every other; and because they are all brought by the natural sympathies of our being into an harmonious system, and form that noble and beautiful whole which we call civilized society.

But, without derogating from the importance of any of the other pursuits and occupations, we

may safely, I think, claim for Agriculture in some respects a certain precedence before them all. It has been said to be the great and final object of government to get twelve impartial and intelligent men into the jury box; by which, of course, is meant that the administration of equal justice between man and man is the primary object of civilized and social life. But the teacher, secular or spiritual, might plausibly urge that it is of prior importance that the community should have the elements, at least, of mental and moral culture, and be taught the obligations of an oath, before any twelve of its members should take part in the administration of justice. The physician might contend that health is of greater importance than the trial by jury; and with greater reason it might be claimed for Agriculture that it supplies the first want of our nature: the daily call of the great family of man for his daily bread—the call that must be answered before the work of life, high or low, can begin. Plaintiff and defendant, judge and jury, must break their fast before they meet in court; and, if the word of a witty poet can be taken, certain very important consequences sometimes happen to culprits, in order that jurymen may get to their dinners.

But, to speak in a more fitting and serious strain, I must confess that there has always seemed to me something approaching the sublime in this view of Agriculture, which (such is the effect of familiarity) does not produce an impression on our minds in proportion to the grandeur of the idea. We seem, on the contrary, to take for granted, that we live by a kind of mechanical necessity, and that our frames are like watches made, if such a thing were possible, to go without winding up, in virtue of some innate principle of subsistence independent of our wills; which is indeed in other respects true. But it is not less true that our existence, as individuals or communities, must be kept up by a daily supply of food, directly or indirectly furnished by Agriculture; and that, if this supply should wholly fail for ten days, all this multitudinous, striving, ambitious humanity, these nations and kindred and tribes of men, would perish from the face of the earth, by the most ghastly form of dissolution. Strike out of existence at once ten days' supply of eight or ten articles, such as Indian corn, wheat, rye, potatoes, rice, millet, the date, the banana, and the bread-fruit, with a half-dozen others which serve as the forage of the domestic animals, and

the human race would be extinct. The houses we inhabit, the monuments we erect, the trees we plant, stand in some cases for ages; but our own frames—the stout limbs, the skilful hands that build the houses, and set up the monuments, and plant the trees—have to be built up, re-created, every day; and this must be done from the fruits of the earth gathered by Agriculture. Everything else is luxury, convenience, comfort—food is indispensable.

Then consider the bewildering extent of this daily demand and supply, which you will allow me to place before you in a somewhat coarse mechanical illustration. The human race is usually estimated at about one thousand millions of individuals. If the sustenance of a portion of these multitudinous millions is derived from other sources than Agriculture, this circumstance is balanced by the fact that there is a great deal of agricultural produce raised in excess of the total demand for food. Let then the thoughtful husbandman, who desires to form a just idea of the importance of his pursuit, reflect, when he gathers his little flock about him to partake the morning's meal, that one thousand millions of fellow men have awakened from sleep that morning, craving

their daily bread, with the same appetite which reigns at his family board ; and that if, by a superior power, they could be gathered together at the same hour for the same meal, they would fill both sides of five tables reaching all round the globe where it is broadest, seated side by side, and allowing eighteen inches to each individual ; and that these tables are to be renewed twice or thrice every day. Then let him consider that, in addition to the food of the human race, that of all the the humble partners of man's toil—the lower animals—is to be provided in like manner. These all wait upon Agriculture, as the agent of that Providence which giveth them their meat in due season ; and they probably consume in the aggregate an equal amount of produce : and finally let him add in imagination to this untold amount of daily food for man and beast the various articles which are furnished directly or indirectly from the soil, for building material, furniture, clothing, and fuel.

The grand total will illustrate the primary importance of Agriculture, considered as the steward—the commissary—charged with supplying this almost inconceivable daily demand of the human race and the subject animals for their daily

bread; a want so imperative and uncompromising, that death in its most agonizing form is the penalty of a failure in the supply.

But although Agriculture is clothed with an importance which rests upon the primitive constitution of our nature, it is very far from being the simple concern we are apt to think it. On the contrary, there is no pursuit in life which not only admits, but requires, for its full development, more of the resources of science and art—none which would better repay the pains bestowed upon an appropriate education. There is, I believe, no exaggeration in stating that as great an amount and variety of scientific, physical, and mechanical knowledge is required for the most successful conduct of the various operations of husbandry, as for any of the arts, trades, or professions. I conceive, therefore, that the legislature and the citizens of the great State over which you, Sir, (Governor King) so worthily preside, have acted most wisely in making provision for the establishment of an institution expressly for agricultural education. There is a demand for systematic scientific instruction, from the very first steps we take, not in the play-farming of

gentlemen of leisure, but in the pursuit of husbandry as the serious business of life.

In the first place, the earth which is to be cultivated, instead of being either a uniform or a homogeneous mass, is made up of a variety of materials, differing in different places, and possessing different chemical and agricultural properties and qualities. A few of these elements, and especially clay, lime and sand, predominate, usually intermixed to some extent by nature, and capable of being so mingled and treated by art, as to produce a vastly increased fertility. The late Lord Leicester in England, better known as Mr. Coke, first carried out this idea on a large scale, and more than doubled the productive value of his great estates in Norfolk by claying his light soils. To conduct operations of this kind, some knowledge of geology, mineralogy and chemistry, is required. The enrichment of the earth by decaying animal and vegetable substances is the most familiar operation perhaps in husbandry; but it is only since its scientific principles have been explored by Davy and Liebig, that the great practical improvements in this branch of agriculture have taken place. It is true that the almost boundless natural fertility of the soil supercedes

for the present, in some parts of our country, the importance of artificial enrichment. I inquired last spring of a friend living in a region of this kind, on the banks of the Ohio, how they contrived to *get rid* of the accumulation of the farmyard, (a strange question it will seem to farmers in this part of the world) and he answered, "By carting it down to the river's side, and emptying it into the stream." In another portion of the western country, where I had seen hemp growing vigorously about thirty years ago, I found that wheat was now the prevailing crop. I was informed that the land was originally so rich as to be adapted only for hemp, but had now become poor enough for wheat.

These, however, are not instances of a permanent and normal condition of things. In the greater part of the Union, especially in those portions which have been for some time under cultivation, the annual exhaustion must be restored by the annual renovation of the soil. To accomplish this object, of late years every branch of science, every resource of the laboratory, every kingdom of nature, have been placed under contribution. Battle fields have been dug over for the bones of their victims; Geology has furnished

lime, gypsum and marl; Commerce has explored the remotest seas for guano, and has called loudly on Diplomacy to assist her efforts; Chemistry has been tasked for the productions of compounds, which, in the progress of science, may supersede those of animal or vegetable origin which are prepared by nature. The nutritive principles developed by decaying animal and vegetable organizations are universally diffused throughout the material world, and the problem to be solved is to produce them artificially on the large scale, cheap enough for general use. In the mean time the most simple and familiar processes of enrichment, with the aid of mechanical power and a moderate application of capital, are producing the most astonishing results. The success which has attended Mr. Mechi's operations in England is familiar to us all. By the application of natural fertilizing liquids, sprinkled by a steam engine over his fields, they have been made to produce, it is said, seven annual crops of heavy grass.

Simple water is one of the most effectual fertilizers, and in some countries irrigation, carried on with no moderate degree of hydraulic skill, is the basis of their husbandry. While walking, on one occasion, with the late Lord Ashburton, in his

delightful grounds in Hampshire, just before he departed on his special mission to this country, in one of the intervals of our earnest conference on the Northeastern Boundary, he told me that he had expended ten thousand pounds sterling in conducting round his fields the waters of the little river—the Itchen, I think—that flows through the property, and that it was money well laid out. Pardon me the digression of a moment to say that I could not but honor the disinterested patriotism which led this kind-hearted, upright and intelligent man, at an advanced age (with nothing on earth to gain or desire, and with everything of reputation to risk,) to leave the earthly paradise in which I saw him, and to cross the Atlantic in the winter in a sailing vessel, (his voyage was of fifty-one days) to do his part in adjusting a controversy which had seriously menaced the peace of the two countries. The famous water-meadows of the Duke of Portland, at Clipstone, have been often described, where the same operation has been performed on a still more extensive scale. Mr. Colman's interesting volumes on European agriculture contain accounts of other works of this kind, but I confine myself to those which have fallen under my own observation.

Nor are these the only operations in which Agriculture calls for the aid of well-instructed skill. That moisture, which in moderation is the great vehicle of vegetable nourishment, may exist in excess. Vast tracts of land are lost to husbandry in this country, which might be reclaimed by dykes and embankments, or become fertile by drainage. Land is yet too abundant and cheap in America to admit of great expenditures in this way, except in very limited localities; but the time will no doubt come when, in the populous portions of the country, especially in the neighborhood of large cities, the sunken marshes which now stretch along our coast will be reclaimed from the ocean, as in Holland; and thousands of acres in the interior, now given up to alder swamps and cranberry meadows, be clothed with grass and corn. There are few farms of any size in the country which do not contain waste spots of this kind—the harbor of turtles, frogs and serpents—which might be brought, at moderate expense and some hydraulic skill, into cultivation. Other extensive tracts are awaiting the time when the increase of population and the enhanced value of land will bear the expense of costly operations in engineering. The marshes on the sea-coast of

New England, New York and New Jersey, probably exceed in the aggregate the superficies of the kingdom of the Netherlands, the greater part of which has been redeemed by artificial means from the ocean—a considerable tract, covered by the lake of Harlem, within a few years. Now, if we could add a new territory to the Union, as large as the kingdom of the Netherlands, by the peaceful operations of husbandry, it would be a species of *annexation* to which I for one should make no objection. All the resources of science have been called into operation in that country, under the direction of a separate department of the government, to sustain the hydraulic works which protect it from the ocean. The state of things is similar in the fens of Lincolnshire and Bedfordshire. All the spare revenues of the Grand Duke of Tuscany have been appropriated for years to the improvement of the low grounds on the coast of that country, once the abode of the powerful Etruscan confederacy, which ruled Italy before the ascendancy of the Romans, now and for ages past a malarious, uninhabitable waste.

But when science and art have done their best for the preparation of the soil, they have but commenced their operations in the lowest depart-

ment of agriculture. They have dealt thus far only with what we call lifeless nature, though I apply that word with reluctance to the genial bosom of our mother Earth, from which everything that germinates draws its life and appropriate nourishment. Still, however, we take a great step upward, when, in pursuing the operations of husbandry, we ascend from mineral and inorganic substances to vegetable organization. We now enter a new world of agricultural research; the mysteries of assimilation, growth and decay; of seed time and harvest; the life, the death, and the reproduction, of the vegetable world. Here we still need the light of science, but rather to explore and reveal than to imitate the operations of nature. The skilful agricultural chemist can mingle soils and compound fertilizing phosphates; but, with all his apparatus and all his re-agents, it is beyond his power to fabricate the humblest leaf. He can give you, to the thousandth part of a grain, the component elements of wheat; he can mingle those elements in due proportion in his laboratory; but to manufacture a single kernel, endowed with living, reproductive power, is as much beyond his skill as to create a world.

Vegetable life, therefore, requires a new course of study and instruction. The adaptation of particular plants to particular soils and their treatment, on the one hand, and on the other, their nutritive powers as food for man and the lower animals, the laws of germination and growth, the influences of climate, the possible range of improvability in cereal grains and fruits, are topics of vast importance. The knowledge—for the most part empirical—already possessed upon these points, is the accumulation of the ages which have elapsed since the foundation of the world, each of which has added to the list its generous fruit, its nutritive grain, its esculent root, its textile fibre, its brilliant tincture, its spicy bark, its exhilarating juice, its aromatic essence, its fragrant gum, its inflammable oil; some so long ago that the simple gratitude of infant humanity ascribed them to the gift of the gods, while others have been brought to the knowledge of the civilized world in the historical period, and others have been presented to mankind by our own continent. No one can tell when wheat, barley, rye, oats, millet, apples, pears and plums, were first cultivated in Europe; but cherries and peaches were brought from the Black Sea and Persia in

the time of the Roman republic; the culture of silk was introduced from the East in the reign of Justinian; cotton and sugar became extensively used in Europe in the middle ages; maize, the potato, tobacco, cocoa, and the Peruvian bark, are the indigenous growth of this country. Tea and coffee, though productions of the Old World, were first known in Western Europe about two centuries ago; and India rubber and gutta percha, as useful as any but the cereals, in our own day.

There is much reason to believe, as our intercourse with Eastern Asia, Polynesia, and Australia increases, that new vegetable products will become known to us, of the greatest interest and importance for food, medicine, and clothing. Many, with which we are acquainted only in the writings of travellers and botanists, will unquestionably be domesticated. The most interesting experiments are in progress on the sugar canes of Africa and China; and there is scarce a doubt that the most important additions will, in the course of time, be made to our vegetable treasures from the latter country. China, like North America, forms the eastern shore of a great ocean, with a cold north-western region in the rear. Its climate, under similar local conditions, closely resembles our

own; and there is reason to believe that whatever grows there will grow here. A somewhat curious illustration of this is found in the plant ging-seng, to which the Chinese formerly attached, perhaps still attach, such a superstitious value. Its bifurcated root, as they thought, symbolized humanity, which indeed it does, as well as Falstaff's "forked radish;" and hence the name ging-seng, or "man-plant." They called it "the pure spirit of the earth," and the "plant that gives immortality." They deemed it the exclusive product of the central flowery kingdom—a panacea for every form of disease, cheaply bought for its weight in silver. A Jesuite missionary to China, Lafitau, being transferred to America early in the last century, discovered the precious plant in our own woods, where, indeed, in some parts of the country, it abounds. It began to be exported by the French to China, and after the commencement of our commercial intercourse with that country, at the close of the war of the Revolution, this much-prized root was sent in great quantities to Canton, and, much to the perplexity and disgust of the Mandarins, became literally a drug in the market, losing most of

its mysterious efficacy, in proportion as it was abundantly supplied by the outside barbarians.

But, without wandering so far for additions entirely novel which may be expected to our vegetable stores, I cannot but regard what may be called organic husbandry as one of the richest departments of science, and one which is as yet almost wholly in its infancy. What wonders are revealed to us by the microscope in the structure and germination of the seed!—the instinct, so to say, of radicle and plumule, which bids one seek the ground, and the other shoot up toward the air; the circulation of the sap, which, examined under a high magnifying power, in a succulent plant—the *Calla*, for instance—resembles a flowing stream of liquid silver—a spectacle, in these days of “suspension,” to make a man’s mouth water; the curious confectionary that secretes sugar, and gluten, and starch, and oil, and woody fibre, and flower, and fruit, and leaf, and bark, from the same elements in earth and air, differing in each differing plant, though standing side by side in the same soil; in a word, the wonders and beauties of this annual creation—for such it is—as miraculous as that by which sun, and moon,

and stars, and earth, and sea, and man, were first formed by the hand of Omnipotence !

And who shall limit the progress of science, and its application to the service of man, in this boundless field ? The grafting of generous fruits on barren stocks is as old as European civilization ; but the artificial hybridization of flowers and fruits is a recent practice, which has already filled our conservatories with the most beautiful flowers, and our graperies and gardens with the choicest varieties of fruit. When reasoning man does with science and skill what has been hitherto left to the winds and the bees, the most important results may be anticipated. Modern chemistry has shown that the growth of the plant is not one simple operation, but that different ingredients in the soil, and different fertilizing substances, afford the appropriate nourishment to different portions of the plant. This discovery will, no doubt, be of great importance in the higher operations of horticulture and pomology.

The culture of the grape and the manufacture of wine, have already become considerable branches of industry, and afford great scope for the application of chemical knowledge. The vineyards in the neighborhood of Cincinnati and

St. Louis, though limited in extent, already bear, in other respects, a creditable comparison with those of Europe. All the processes of manufacture rival those of the province of Champagne and the Rhine, both in integrity and skill—a remark which I venture to make from some opportunities of personal comparison. Time, no doubt, will eventually bring to light a belt of territory—probably in the interior, or in the Western portion of the continent (for we do not find wine in the eastern portion of Asia)—which will equal the most delicate vintages of Burgundy, Bordeaux, or Xeres.

Nor is it less probable that many vegetable products now imported from foreign countries will be naturalized here. It is but a century since the first experiments were made on the American continent in the cultivation of rice and cotton; and there is no reason to doubt that whatever the Old World produces will flourish within the same isothermal lines in this hemisphere. The recent agricultural reports from the patent office contain very important indications and suggestions on this branch of husbandry.

The condition of our native forests opens another broad field of inquiry in agricultural

science, under three very striking aspects. The extensive prairies of the West, denuded of wood for an unknown length of time, and under the operation of causes not perhaps certainly made out, await from the settler's skill and industry those plantations which add so much to the beauty and salubrity of the soil, and contribute so materially to the service of man. In the mean time it is a very important question, in a broad region of the West, whether anything cheaper and more effectual than the Osage orange (*Maclura*) can be found for fencing. In other portions of the country a condition of things exists the precise reverse of that just described; and immense tracts of native forest, covering the land for hundreds of miles with a matted, impervious, repulsive wilderness, form a very serious impediment to cultivation, and constitute one of the great hardships which attend the pioneer of settlement. The opening of railroads through extensive districts of this description, with the intense demand for land, caused in part by the unexampled emigration from Europe, will probably lead to new applications of steam power, machinery, and capital, in the first clearing of the land; and thus materially facilitate the process of bringing it into

cultivation. In the mean time, in the older settled parts of the country, we have some backward steps to take. The clothing of the sterile hill-sides and barren plains with wood is an object of great interest. The work of destruction has been carried on with too little discrimination. Too little thought has been had of that noblest spectacle in the vegetable world, plantations of trees for ornament and shade; too little consideration for a permanent supply of the demand for timber and fuel.

Every topic to which I have thus hastily alluded, in connection with the vegetable kingdoms of nature, suggests inquiry for the naturalist, in some department of his studies, and forms the subject of regular courses of instruction in some of the European universities, especially those in Germany.

The insects and vermin injurious to vegetation present another curious and difficult subject of inquiry. A very considerable part of every crop of grain and fruit is planted, not for the mouths of our children, but for the fly, the curculio, and the canker-worm, or some other of these pests of husbandry. Science has done something, and will no doubt do more, to alleviate the plague. It

has already taught us not to wage equal war on the wheat-fly and the parasite which preys upon it; and it will, perhaps, eventually persuade those who need the lesson, that a few peas and cherries, are well bestowed by way of desert on the cheerful little warblers who turn our gardens into concert-rooms, and do so much to aid us in the warfare against the grubs and caterpillars which form their principal meal.

Agriculture is looking anxiously to science for information on the nature and remedies of the formidable disease which has of late years destroyed so large a portion of the potato crop. The naturalist who shall solve that problem will stand high among the benefactors of his race.

Closely connected with this department of Agriculture is another, in which the modern arts have made great progress, and in which inventive sagacity is still diligently and successfully employed—I refer to agricultural machinery—improved implements of husbandry. This is a field in which the creative powers of the mind seem to be at work with an activity never before equalled, and which is likely to produce more important results in this than in any other country. The supply of labor in the United States

has not kept pace with the demand, as it can rarely do in a new country, were strong temptations exist for enterprising attempts in every branch of industry. This state of things has furnished very powerful inducements for the introduction of labor-saving machinery and implements, and the proverbial ingenuity of our countrymen has been turned with great success in that direction. Your exhibition grounds fully justify this remark. Even the good old plough has become almost a new machine in its various novel forms; and other implements of the most ingenious contrivance and efficient action have been invented. The cultivator, the horse rake, the mowing machine, the reaper, and the threshing machine, are daily coming into use in Europe and America, and producing the most important economy of labor. Successful attempts are making to work them by steam. It was said long ago of the cotton gin, by Mr. Justice Johnson of the Supreme Court of the United States, that it had doubled the value of the lands in the cotton-growing region; and the mowing machine, the reaper, and the threshing machine, are destined, almost to the same extent, to alleviate the severest labors of the farmer's year. The fame of the reaper is not

confined to this hemisphere. At the great Exhibition of the Industry of all Nations, in London, in 1851, it mainly contributed to enable American art to hold up her head in the face of the civilized world.*

* The first of the following extracts is copied from the *Boston Traveler* of the 23d September, 1857; the second from a recent number of the *London Illustrated News*. I have no means of verifying the accuracy of the statements :

“ AGRICULTURE AT THE WEST.—The scarcity of labor, and the enterprise of the emigrants and speculators, has led to the introduction of more labor-saving machinery upon the farms in our Western States than anywhere else in the world. A correspondent of the Cincinnati *Daily Gazette* says, among other improvements steam-power threshing machines are fast coming into use. The writer describes one he had just seen in operation on the farm of Dr. Watts, in Chillicothe. The wheat fields on this farm cover, the present year, three hundred and eighty-seven acres, which have produced some eight or ten thousand bushels of grain. He found the threshing ground very much like a village of straw-ricks, in the midst of which was a puffing engine, making the wheels of a machine fly, while men, horses, oxen and wagons were kept busy supplying its wants. The machine, and three men to tend it, are furnished for five cents a bushel threshed. The consumption of wood is about one and a quarter cords per day, at two dollars and a half per cord. The price of farm labor there now is one dollar per day and board.

“ The machine, when in active operation, threshed two bushels a minute, and on an average threshes seven hundred bushels a day. This is the work of seventy men in the old way of threshing by flail. The proprietor of the machine had more applications than he could supply, and his next engagements were for fifteen hundred acres of grain owned by five proprietors, and yet this is not one of the great wheat counties of the State. Agricultural machinery of all kinds is extending rapidly through the West. The county of Pickaway now employs three hundred and fifty mowing and reaping machines. Some of the interior counties have great manufacturing establishments for this machinery.”

“ A correspondent of the *Chicago Tribune* says that, being in Rock county, Illinois, in the middle of August, 1857, he went up to the top of a hill called Mount Zion, six miles from Janesville, and counted on

But there is still another department of Agriculture, which opens the door to research of a higher order, and deals with finer elements—I mean that which regards the domestic animals attached to the service of man, and which are of such inestimable importance as the direct partners of his labors, as furnishing one of the great articles of his food, and as a principal resource for restoring the exhausted fertility of the soil. In the remotest ages of antiquity, into which the torch of history throws not the faintest gleam of light, a small number, selected from the all but numberless races of the lower animals, were adopted by domestication into the family of man. So skilful and exhaustive was this selection, that three thousand years of experience, during which Europe and America have been settled by civilized races of men, have not added to the number. It is somewhat humbling to the pride of our rational nature to consider how much of our civilization rest on this partnership; how helpless we should be, deprived of the horse, the ox, the cow,

the surrounding plain one hundred and fifty four-horse-power reaping machines, busily cutting down wheat. There were a thousand men, women and boys following, binding and shocking up the golden sheaves. It was a sight worth seeing to behold the grain falling and gathered up at the rate of two hundred acres per hour."

the sheep, the swine, the goat, the ass, the reindeer, the dog, the cat, and the various kinds of poultry. In the warmer regions this list is enlarged by the llama, the elephant, and the camel, the latter of which, it is not unlikely, will be extensively introduced in our own southern region.

It may be said of this subject, as of that to which I have already alluded, that it is a science of itself. No branch of husbandry has, within the last century, engaged more of the attention of farmers, theoretical and practical, than the improvement of the breed of domestic animals, and in none perhaps has the attention thus bestowed been better repaid. By judicious selection and mixtures of the parent stock, and by intelligence and care in the training and nourishing of the young animals, the improved breeds of the present day differ probably almost as much from their predecessors a hundred years ago, as we may suppose the entire races of domesticated animals do from the wild stocks from which they are descended.

There is no reason to suppose that the utmost limit of improvement has been reached in this direction. Deriving our improved animals as we generally do from Europe—that is, from a climate

differing materially from our own—it is not unlikely that, in the lapse of time, experience will lead to the production of a class of animals, better adapted to the peculiarities of our seasons than any of the transatlantic varieties as they now exist. The bare repetition of the words, draft, speed, endurance, meat, milk, butter, cheese, and wool, will suggest the vast importance of continued experiments on this subject, guided by all the lights of physiological science.

Among the most prominent *desiderata*, in what may be called animal husbandry, may be mentioned an improved state of veterinary science in this country. While the anatomy of the lower animals is substantially the same as man's, their treatment when diseased, or overtaken by accidents, is left almost wholly to uneducated empiricism. It rarely, I may say never happens, that the substantial farmer has not considerable property invested in live stock, to say nothing of the personal attachment he often feels for some of his favorites—horse, or cow, or dog. But when their frames, as delicately organized and as sensitive as our own, are attacked by disease, or they meet with a serious accident, they are of necessity in most parts of the country committed to the care

of persons wholly ignorant of anatomy and physiology, or imperfectly acquainted with them, and whose skill is comprehended in a few rude traditional operations and nostrums. There are few of us, I suppose, who have not had some painful experience on this subject, both in our pockets and our feelings. The want of veterinary institutions, and of a class of well educated practitioners, is yet to be supplied.

This hasty survey of the different branches of Agriculture, imperfect as practical men must regard it, has, I think, shown that it opens a wide field for scientific research, and demands an appropriate education. It is, in fact, in all respects a liberal pursuit and as such ought to be regarded by the community. It is greatly to be desired that public opinion in America should undergo some change in this respect. There is no want of empty compliments to the "Independent Yeomanry" at public festivals and electioneering assemblages. When the popular ear is to be tickled, and the popular suffrage conciliated, the "substantial farmer" is sure to be addressed in honeyed phrase; but the most superficial observation of society shows that the learned professions, as they are denominated—the various

kinds of "business," as it is significantly called, as if people could not *busy* themselves to any purpose, except in some kind of traffic—and in preference to both, or in conjunction with both, political employment, are regarded as the enviable pursuits of life. It is not altogether so in the country from which the majority of the people of America are descended. In England the ultimate object of a liberal ambition is the ownership of a handsome landed property, and the actual management by the proprietor of a considerable portion of it. Great fortunes, however acquired, are almost sure to be invested in great landed estates. Whether employed in the professions or in commerce, men escape from city life as from confinement, and the country seat is generally the family mansion.

It would be absurd to deny the manifold importance of great commercial towns in our social system. They are not the mere result of calculation; they grow up by an irresistible necessity. The intense life which springs from their stern competition undoubtedly performs a most important office in the progress of civilization. The faculties are sharpened by the direct contact and collision of kindred minds. The great accu-

mulations of capital, which almost exclusively take place in commerce and the occupations connected with it, exercise an all-powerful influence in the community, and are felt in all its enterprises. The social sympathies gather warmth and force from the generous contagion of congenial natures. But society is in its happiest state when town and country act and react upon each other to mutual advantage; when the simpler manners and purer tastes of rural life are brought to invigorate the moral atmosphere of the metropolis, and when a fair proportion of the wealth acquired in the city flows back and is invested in landed improvements; transferring cultivated tastes and liberal arts from crowded avenues and ringing pavements to the open, healthful country, and connecting them with its substantial interests and calm pursuits.

In acknowledging, as I do most cheerfully, the important relations of city life and commercial pursuits to the entire social system of the country, I leave of course out of the account—I have no words but of abhorrence—for the organized conspiracies, swindling and plunder, which exist side by side with the legitimate transactions of the stock exchange. It is not one of the least perplexing

anomalies of modern life and manners, that while avowed and thus far honest gambling (if I may connect those words) is driven by public opinion and the law, to seclude itself from observation within carefully tyled doors, there to fool away its hundreds, perhaps its thousands in secret—discredited, infamous—blasted by the anathemas of deserted, heart-broken wives and beggared children—subject at all times to the fell swoop of the police—the licensed gambling of the brokers' board is carried on in the face of day; its pretended sales of what it does not own, its pretended purchases of what it does not expect to pay for, are chronicled in the public prints to the extent of millions in the course of a season, for the cruel and dishonest purpose of frightening innocent third parties into the ruinous sacrifice of *bona fide* property, and thus making a guilty profit out of the public distress and the ruin of thousands.

I do not claim for agricultural life in modern times the Arcadian simplicity of the heroic ages; but it is capable, with the aid of popular education and the facilities of intercommunication, of being made a pursuit more favorable than city life to that average degree of virtue and happiness to which we may reasonably aspire in the

present imperfect stage of being. For the same reason that our intellectual and moral faculties are urged to the highest point of culture by the intense competition of the large towns, the contagion of vice and crime produces in a crowded population a depravity of character from which the more thinly inhabited country, though far enough from being immaculate, is comparatively free. Accordingly, we find that the tenure on which the land is owned and tilled—that is, the average condition of the agricultural masses—decides the character of a people. It is true that the compact organization, the control of capital, the concentrated popular talent, the vigorous press, the agitable temperament of the large towns, give them an influence out of proportion to numbers; but this is far less the case in the United States than in most foreign countries, where the land is held in large masses by a few powerful landholders. Divided as it is in this country into small or moderate-sized farms, owned, for the most part, and tilled by a class of fairly-educated, independent, and intelligent proprietors, the direct influence of large towns on the entire population is far less considerable than in Europe. Paris can at all times make a revolution in France;

but not even your imperial metropolis could make a revolution in the United States. What the public character loses in concentration and energy by this want of metropolitan centralization, is more than gained, by the country, in the virtuous mediocrity, the decent frugality, the healthfulness, the social tranquility, of private life. I trust I do full justice to the elegant refinements, the liberal institutions, the noble charities, the creative industries, the world-encompassing energy, of the cities; but the profuse expenditure of the prosperous, the unfathomed wretchedness of the destitute, the heaven-defying profligacy of the corrupt, the insane spirit of speculation, the frantic haste to become rich, the heartless dissipations of fashionable life, the growing ferocity and recklessness of a portion of the public press, the prevailing worldliness of the large towns, make me tremble for the future. It appears to me that our great dependence, under Providence, must be more and more on the healthy tone of the population scattered over the country, strangers to the excitements, the temptations, the revulsions of trade, and placed in that happy middle condition of human fortune, which is equidistant from the giddy heights of affluence, power, and fame, and

the pinching straits of poverty, and as such most favorable to human virtue and happiness.

While the city is refreshed and renovated by the pure tides poured from the country into its steamy and turbid channels, the cultivation of the soil affords at home that moderate excitement, healthful occupation, and reasonable return, which most conduce to the prosperity and enjoyment of life. It is in fact the primitive employment of man—first in time, first in importance. The newly-created father of mankind was placed by the Supreme Author of his being in the garden, which the hand of Omnipotence itself had planted, “to dress and to keep it.” Before the heaving bellows had urged the furnace, before a hammer had struck upon an anvil, before the gleaming waters had flashed from an oar, before trade had hung up its scales or gauged its measures, the culture of the soil began. “To dress the garden and to keep it”—this was the key-note struck by the hand of God himself in that long, joyous, wailing, triumphant, troubled, pensive strain of life-music which sounds through the generations and ages of our race. Banished from the garden of Eden, man’s merciful sentence—at once doom, reprieve, and livelihood—was “to till the ground

from which he was taken," and this, in its primitive simplicity, was the occupation of the gathering societies of men. To this wholesome discipline the mighty East, in the days of her ascendancy, was trained; and so rapid was her progress that, in periods anterior to the dawn of history, she had tamed the domestic animals, had saddled the horse, and yoked the ox, and milked the cow, and sheared the patient sheep, and possessed herself of all the cereal grains (with the exception of maize, and that controverted,) which feed mankind at the present day. I obtained from the gardens of Chatsworth and sent to this country, where they germinated, two specimens of wheat raised from grains supposed to have been wrapped up in Egyptian mummy-cloths, three thousand years ago, and not materially differing from our modern varieties; one of them, indeed, being precisely identical—thus affording us the pleasing assurance that the corn which Joseph placed in Benjamin's sack before the great Pyramid was built was not inferior to the best Genesee of the present day.

Agriculture, I say, was the great pursuit of the primeval East. Before the intellectual supremacy of Greece was developed, while the Macedonian

sword slept in its scabbard, before the genius of military domination was incarnate in the Roman legion, while the warlike North yet wandered in her pathless snows, the Persian traveled far on the road to universal conquest and empire. From the Ionian Gulf to the Indus, from the Tanais to the sources of the Nile, a hundred and twenty-seven satraps, in the name of the great king, administered that law of the Medes and Persians which never changed; and throughout this mighty monarchy—one of the most extensive that ever obeyed one ruler—next to war, agriculture was the honored pursuit. On this subject the Greek historian Xenophon has preserved to us a charming anecdote. On a certain occasion, one of those half-mythical Persian sovereigns, into whose personal history the philosophers of Greece delighted to weave their highest conceptions of royal polity, Cyrus the Younger, received Lysander, the envoy of the Grecian allies, at Sardis; and conducting him into the royal grounds, pointed out the beauty of the plantations, the straight avenues of trees, their rectangular disposition, and the fragrant shrubbery that shaded the walks. “Truly,” cried the Spartan warrior, unused to these delightful but manly refinements, “I admire the beautiful

scene, but much more should I admire the artist by whose skill it was created." Cyrus, pleased with this commendation, exclaimed, "It was all laid out and measured by myself, and a portion of the trees planted by my own hands." The astonished Lacedæmonian chieftain, looking up at Cyrus, arrayed, as was and is the fashion of the East, in royal purple, his arms and fingers sparkling with rings and bracelets, and his robes exhaling perfumes, exclaimed, "You have planted these trees with your own hands?" "Yes, by heavens," cried Cyrus, "nor do I ever go to my dinner till I have earned my appetite by some military or agricultural exercise." The Spartan saw in these manly, strength-giving, life-giving gymnastics the secret of the power which for the time had mastered the world, and clasping the hands of the virtuous prince, exclaimed, "Justly hast thou prospered, O Cyrus! thou art fortunate because thou deservest to be."

The Persian sank beneath the sword of the Macedonian, whose short-lived empire fell with its youthful founder. Had Alexander the Great planted trees in the interval of his wars, and drank water, like Cyrus, he might have lived to establish the most extensive empire which the

world has yet seen. But a new portent of conquest was springing up in the West, on the frugal acres of Etruria and Latium. That Cincinnatus who drove the Æqui and Volsci from the gates of Rome; that Paulus Æmilius who led the last king of Macedonia with his family in triumph up the steps of the Capitol; that Scipio who at Zama forever broke the power of Carthage; those iron-handed, iron-hearted consuls who conducted the Roman legions over degenerate Greece, and fiery Africa, and effeminate Asia—in the intervals of war and conquest tilled their little Latian farms. That stern censor, who first made the name of austere frugality synonymous with Cato, wrote a treatise on the cultivation of the soil; and so sure was a great Roman chief, in the best days of the republic, to be found at his farm, that the sergeants-at-arms, sent by the Senate to summon them to the command of legions and the conquest of nations, were technically called *viatores*, “travelers.”

At length the Roman civilization perished, and a new one, resting on the morality of the gospel and the hardy virtues of the northern races, took its place, and has subsisted, with gradual modifications, to the present day. Its first politi-

cal development was in the land tenures of the feudal system, and it still rests on the soil. Notwithstanding the great multiplication of pursuits in modern times, the perfection of the useful and the fine arts, the astonishing expansion of commercial, manufacturing and mechanical industry, agriculture has kept pace with the other occupations of society, and continues to be the foundation of the social system. The tenure, cultivation, and produce of the soil still remain the primary interests of the community.* The greatest political philosopher and most consummate statesman of modern Europe, Edmund Burke, who saw further than any of his countrymen into the cloudy future which hung over the close of the eighteenth century, at the meridian of his life, and while most engrossed in public business, purchased a large farm. "I have," says he in a letter written to a friend in that most critical year of English politics, 1769, "just made a push with all I could collect of my own and the aid of my friends, to cast a little root in the country. I have purchased about six hundred acres of land in Buckingham-

* "That description of property (landed property) is in its nature the firm base of every stable government."—*Burke's Letters on a Regicide Peace.*

shire, about twenty-four miles from London. It is a place exceedingly pleasant, and I purpose, God willing, to become a farmer in good earnest." This his purpose he carried into effect, and adhered to it to the end of his life. Those immortal orations, which revived in the British senate the glories of the ancient eloquence, were meditated in the retirement of Beaconsfield; and there also were composed those all but inspired appeals and expostulations, which went to the heart of England and Europe in the hour of their dearest peril, and did so much to expose the deformity and arrest the progress of that godless philosophy—specious, arrogant, hypocritical and sanguinary—which, with liberty and equality on its lips, and plunder, and murder, and treason, in its heart, waged deadly war on France and mankind, and closed a professed crusade for republican freedom by the establishment of a military despotism.

A greater than Burke in this country, our own peerless Washington, with a burden of public care on his mind such as has seldom weighed upon any other person—conscious, through a considerable part of his career, that the success not only of the American Revolution, but of the whole

great experiment of republican government, was dependent in no small degree upon his course and conduct—yet gave throughout his life, in time of peace, more of his time and attention, as he himself in one of his private letters informs us, to the superintendence of his agricultural operations, than to any other object. “It will not be doubted,” says he, in his last annual message to Congress (7th of December, 1796,) “that, with reference either to individual or national welfare, Agriculture is of primary importance. In proportion as nations advance in population and other circumstances of maturity, this truth becomes more apparent, and renders the cultivation of the soil more and more an object of public patronage.

* * * Among the means which have been employed to this end, none have been attended with greater success than the establishment of boards, charged with collecting and diffusing information, and enabled, by premiums and small pecuniary aids, to encourage and assist a spirit of discovery and improvement.” On the 10th of December, 1799, Washington addressed a long letter to the manager of his farms—the last elaborate production of his pen—transmitting a plan, drawn up on thirty written folio pages, containing

directions for their cultivation for several years to come. In seven days from the date of this letter his own venerated form was “sown a natural body, to be raised a spiritual body.”

Nearly all the successors of Washington in the Presidency of the United States, both the deceased and the living, passed or are passing their closing years in the dignified tranquillity of rural pursuits. One of the most distinguished of them, Mr. Jefferson, invented the hill-side plough. Permit me also to dwell for a moment on the more recent example of the four great statesmen of the North, the West, and the South—whose names are the boast and the ornament of the last generation—Adams, Calhoun, Clay and Webster, who forgot the colossal anxieties, the stern contentions, the herculean labors, and the thankless sacrifices, of the public service, in the retirement of the country, and the calm and healthful pursuits of Agriculture. One of these four great men it was not my fortune personally to behold in the enjoyment of these calm and rational pleasures, but I well remember hearing him say, with a radiant countenance, that there was nothing in the triumphs or honors of public life so grateful to his feelings as his return to his home in Carolina, at the close of the session

of Congress, when every individual on his plantation, not excepting the humblest, came out to bid him welcome and to receive the cordial pressure of his hand. I was often the witness of the heartfelt satisfaction which Mr. Adams enjoyed on his ancestral acres, especially in contemplating the trees planted by himself, thousands of which are now scattered over the estate. While he ministered in this way to the gratification and service of other times, he felt that he was discharging no small portion of the debt which each generation owes to its successors. Adopting a tree as the device of his seal, he added to it, as the expressive motto, the words which Cicero quotes with approbation from an ancient Latin poet, *Alteri sæculo*. Mr. Adams took particular pleasure in watching the growth of some white maples, the seeds of which he had gathered as they dropped from the parent trees in front of that venerable hall in Philadelphia which echoed to his honored father's voice in the great argument of American independence. At Ashland, in 1829, I rode over his extensive farm, with the illustrious orator and statesman of the West; and as the "swinish multitude," attracted by the salt which he liberally scattered from his pocket, came running about us

in the beautiful woodland pasture, carpeted with that famous Kentucky blue grass, he good-humor-edly compared them to the office-seekers, who hurry to Washington, at the commencement of an administration, attracted by the well-flavored relish of a good salary. Mr. Webster, reposing on his farm, at Marshfield, from the toils of the forum, and the conflicts of the Senate, resembled the mighty ocean, which he so much loved, which, after assaulting the cloudy battlements of the sky, with all the seething artillery of his furious billows, when the gentle south-west wind sings truce to the elemental war, calls home his rolling mountains to their peaceful level, and mirrors the gracious heavens in his glassy bosom.

The culture of the soil has, in all ages, been regarded as an appropriate and congenial occupation for declining life. Cicero, in his admirable treatise on "Old Age," speaking in the person of Cato the Elder, to whom I have already referred, when he comes to consider the pleasures within the reach of the aged, gives the most prominent place to those which may be enjoyed in agricultural pursuits. These, he adds, are not impaired by the advance of years, and approach, as near as possible, to the ideal "life of the Wise Man." Guided by the light of nature, he contemplated

with admiration that “power,” as he calls it, of the earth, by which it is enabled to return to the husbandman, with usury, what he has committed to its trust. It belongs to us, favored with a knowledge of the spiritual relations of the universe not vouchsafed to the heathen world, to look upon agriculture in higher aspects, especially in the advance of life; and as we move forward ourselves toward the great crisis of our being, to catch an intelligent glimpse of the grand *arcana* of nature, as exhibited in the creative energy of the terrestrial elements—the suggestive mystery of the quickening seed, and the sprouting plant; the resurrection of universal nature from her wintry grave.

A celebrated sceptical philosopher of the last century—the historian Hume—thought to demolish the credibility of the Christian Revelation, by the concise argument, “It is contrary to experience that a miracle should be true, but not contrary to experience that testimony should be false.” The last part of the proposition, especially in a free country, on the eve of a popular election, is, unhappily, too well founded; but in what book-worm’s dusty cell, tapestried with the cobwebs of ages, where the light of real life and nature never forced its way—in what pedant’s school, where deaf ears listen to dumb lips, and

blind followers are led by blind guides—did he learn that it is contrary to experience that a miracle should be true? Most certainly he never learned it from sower or reaper—from dumb animal, or rational man connected with husbandry. Poor Red-Jacket, off here on Buffalo Creek, if he could have comprehended the terms of the proposition, would have treated it with scorn. Contrary to experience that phenomena should exist which we cannot trace to causes perceptible to the human sense, or conceivable by human thought! It would be much nearer the truth to say that within the husbandman's experience there are no phenomena which can be rationally traced to anything but the instant energy of creative power.

Did this philosopher ever contemplate the landscape at the close of the year, when seeds, and grains, and fruits have ripened, and stalks have withered, and leaves have fallen, and winter has forced her icy curb even into the roaring jaws of Niagara, and sheeted half a continent in her glittering shroud, and all this teeming vegetation and organized life are locked in cold and marble obstruction; and, after week upon week and month upon month have swept, with sleet, and chilly rain, and howling storm, over the earth, and riveted their crystal bolts upon the door of nature's

sepulchre—when the sun at length begins to wheel in higher circles through the sky, and softer winds to breathe over melting snows; did he ever behold the long-hidden earth at length appear, and soon the timid grass peep forth, and anon the autumnal wheat begin to paint the field, and velvet leaflets to burst from purple buds, throughout the reviving forest; and then the mellow soil to open its fruitful bosom to every grain and seed dropped from the planter's hand, buried but to spring up again, clothed with a new mysterious being; and then as more fervid suns inflame the air, and softer showers distil from the clouds, and gentler dews string their pearls on twig and tendril, did he ever watch the ripening grain and fruit, pendent from stalk, and vine, and tree; the meadow, the field, the pasture, the grove, each after his kind arrayed in myriad-tinted garments, instinct with circulating life; seven millions of counted leaves on a single tree,* each of which is a system whose exquisite complication puts to shame the shrewdest cunning of the human hand; every planted seed and grain, which had been loaned to the earth, compounding its pious usury thirty, sixty, a hundred fold—all harmoniously adapted to the sustenance of living nature—the bread of a hungry world;

* Johnson's *Chemistry of Common Life*, I., p. 13.

here a tilled cornfield, whose yellow blades are nodding with the food of man ; there an unplanted wilderness—the great Father’s farm—where he “who hears the raven’s cry” has cultivated, with his own hand, his merciful crop of berries, and nuts, and acorns, and seeds, for the humbler families of animated nature—the solemn elephant, the browsing deer, the wild pigeon, whose fluttering caravan darkens the sky—the merry squirrel, who bounds from branch to branch, in the joy of his little life ; has he seen all this—does he see it every year, and month, and day—does he live, and move, and breathe, and think, in this atmosphere of wonder—himself the greatest wonder of all, whose smallest fibre and faintest pulsation is as much a mystery as the blazing glories of Orion’s belt,—and does he still maintain that a miracle is contrary to experience ? If he has, and if he does, then let him go, in the name of Heaven, and say that it is contrary to experience that the August Power which turns the clods of the earth into the daily bread of a thousand million of souls could feed five thousand in the wilderness !

One more suggestion, my friends, and I relieve your patience. As a work of art, I know few things more pleasing to the eye, or more capable of afford-

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Rosa Bonheur never painted, roam the pastures, or fill the hurdles and the stalls; the plough walks in rustic majesty across the plain, and opens the genial bosom of the earth to the sun and air; nature's holy sacrament of seed-time is solemnized beneath the vaulted cathedral sky; silent dews, and gentle showers, and kindly sunshine, shed their sweet influence on the teeming soil; springing verdure clothes the plain; golden wavelets, driven by the west wind, run over the joyous wheat-field; the tall maize flaunts in her crispy leaves and nodding tassels: while we labor and while we rest, while we wake and while we sleep, God's chemistry, which we cannot see, goes on beneath the clods; myriads and myriads of vital cells, ferment with elemental life; germ and stalk, and leaf and flower, and silk and tassel, and grain and fruit, grow up from the common earth; the mowing machine and the reaper—mute rivals of human industry—perform their gladsome task; the well-piled wagon brings home the ripened treasures of the year; the bow of promise fulfilled spans the foreground of the picture, and the gracious covenant is redeemed, that while the earth remaineth, summer and winter, and heat and cold, and day and night, and seed-time and harvest, shall not fail.

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